U. S. Environmental Protection Agency
Region 9
75 Hawthorne Street
San Francisco, CA 94105-3901

August 12, 1999

FACT SHEET

DRAFT
Authorization to Discharge under the
National Pollutant Discharge Elimination System
for the
Commonwealth Utilities Corporation
Agingan Wastewater Treatment Plant

NPDES Permit No. NI0020028

These pages contain information concerning the draft National Pollutant Discharge Elimination System (NPDES) permit for the Agingan Wastewater Treatment Plant (WWTP) discharge.

I. SUMMARY

In accordance with the authorities vested in Section 402 of the Clean Water Act (CWA), the U. S. Environmental Protection Agency, Region 9 (hereinafter USEPA Region 9) is proposing issuance of a NPDES permit to the Commonwealth Utilities Corporation (hereinafter permittee) for the Agingan WWTP discharge of secondary treated wastewater through the Agingan intertidal outfall to the surf line of Class A marine receiving waters named Tinian Channel, tributary to Saipan Channel of the Philippine Sea.

The Agingan intertidal outfall discharges within territorial waters of the Commonwealth of the Northern Mariana Islands (CNMI). However, because the CNMI Division of Environmental Quality (DEQ) has not been delegated primary regulatory responsibility for administering the NPDES permitting program, USEPA Region 9 has primary regulatory responsibility for the discharge. USEPA Region 9 is proposing to issue a NPDES permit incorporating both federal secondary treatment standards and CNMI water quality requirements. The Agingan WWTP discharge of secondary treated wastewater does not fully comply with *Commonwealth of the Northern Mariana Islands Water Quality Standards* (WQS) implemented as water quality based effluent limitations in the draft permit. Consequently, USEPA Region 9 is concurrently issuing an Administrative Order which will include: (1) a schedule of activities to ensure that the discharge will come into compliance with WQS during this permit term, and (2) interim discharge limitations based on current wastewater treatment plant performance.

II. ADMINISTRATIVE PROCESS

The administrative processing of a NPDES application consists of the following actions:

A. Filing of a timely and complete application by the permittee;

B. Comparison of the application with standards and criteria set forth in the statute and regulations, and preparation of a draft NPDES permit by USEPA Region 9 staff; and initial screening of the application by the Commonwealth;

C. Public notice of a draft NPDES permit by USEPA Region 9;

D. Public hearings (if needed) to address public interest;

E. Commonwealth concurrence in the issuance of a NPDES permit (through CWA Section 401 water quality certification); or denial by the Commonwealth.

F. Processing of appeals, in accordance with 40 CFR 124, Subpart E, by USEPA Region 9.

III. DRAFT PERMIT DECISION

On February 27, 1995, having withdrawn its renewal application for a variance from secondary treatment standards pursuant to Section 301(h) of the CWA, the permittee submitted an application for a NPDES permit consistent with federal secondary treatment standards for publicly owned treatment works (POTWs). This fact sheet sets forth the principal facts and significant legal, methodological, and policy questions considered in the development of the draft permit. The draft permit is based on the Administrative Record.

IV. FACILITY DESCRIPTION

The permittee presently operates the Agingan WWTP located on the southern end of the island of Saipan at Agingan Point. Agingan WWTP serves a population of approximately 14,700 people and receives mainly domestic wastewaters from a network of wastewater collection and transmission facilities known as the Southern System. Over the past several years there has been a large increase in garment industry activities on Saipan (garment factories use various types of chemicals in the manufacturing process). Due to population growth, there has also been an increase in the number of service industries (e.g., automobile repair shops, gasoline stations, and power generators) which may serve as potential sources introducing contaminants into the wastewater collection system. While the permittee estimates the total average daily wastewaster flow from all industrial sources in the service area to be zero, there is likely occasional discharge of industrial and sometimes toxic/hazardous wastes into the wastewater collection system by different users.

In 1985, Agingan WWTP was permitted under Section 301(h) of the CWA to discharge primary treated effluent based on a treatment capacity of 1.0 MGD; however, to achieve federal secondary treatment standards for POTWs and to accommodate population growth in the service area, the permittee upgraded and expanded the WWTP to 3.0 MGD. This upgraded and expanded WWTP began operation in 1993. Agingan WWTP is currently designed to treat 3.0 MGD of secondary treated wastewater using the physical and biological processes listed below:

Agingan WWTP	
Primary and Secondary Treatment	Solids Handling
Influent screening Grit removal Aerated biological treatment using activated sludge (waste activated sludge to aerobic digester) Clarification (scum to digester)	Screenings and grit (to municipal solid waste landfill) Sludge aerobically digested Digested sludge chemically conditioned and dewatered using belt filter press Sludge cake (to municipal solid waste landfill)

Based on data provided by the permittee, the treated wastewater discharge has the following characteristics for biochemical oxygen demand, total suspended solids, and pH:

Discharge Parameter	Units	Annual Average (1998)
Flow	MGD	2.04
Biochemical Oxygen Demand (BOD_5)	mg/l	12
	% removal	92
Total Suspended Solids (TSS)	mg/l	16
	% removal	90
pH	units	7.5

Secondary treated wastewater is discharged at the surf line through an intertidal outfall into Class A receiving waters named Tinian Channel, tributary to Saipan Channel of the Philippine Sea. The outfall, constructed in 1968, is a concrete-encased 12-inch cast iron pipe. The intertidal termination of the outfall has no diffuser and its open end is alternately submerged and subaerially exposed by heavy swell and breaking waves. The discharge point is described as follows:

Discharge Serial Number	North Latitude	East Longitude	Description
002	15˚ 7'	145˚ 41'	Primary discharge point at surf line into Tinian Channel, Philippine Sea, on the island of Saipan.

Aerobically digested sludge is dewatered and sludge cake is hauled to and disposed of at Puerto

Rico Dump, a municipal solid waste landfill.

The discharge is currently regulated under NPDES Permit No. NI0020028, issued September 27, 1985. This permit expired September 26, 1990.

V. BASES FOR REQUIREMENTS

Federal secondary treatment effluent standards for POTWs are contained in Section 301(b)(1)(B) of the CWA. Implementing regulations for Section 301(b)(1)(B) are found at 40 CFR 133.102(c). The requirements contained in the draft permit are necessary to assure no violation of applicable treatment standards.

The *Commonwealth of the Northern Mariana Islands Water Quality Standards* (WQS), amended and adopted on January 15, 1997, contain water quality standards (use classifications and criteria) for waters of the Commonwealth. The requirements contained in the draft permit are necessary to assure no violation of applicable water quality standards in Class A waters off Agingan Point. (Class A waters are protected for their recreational use and aesthetic enjoyment; other uses are allowed as long as they are compatible with the protection and propagation of fish, shellfish, and wildlife, and recreation in and on these waters.)

While the Agingan WWTP is not subject to pretreatment requirements contained in 40 CFR 403, the draft permit contains conditions which require the permittee to develop and implement education programs to minimize the entrance of nonindustrial toxic pollutants/pesticides and hazardous industrial wastes into the Agingan WWTP. In addition, the permittee must identify industrial sources discharging hazardous wastes into the collection system and continue surveying industrial users to identify waste disposal practices. These requirements are necessary to assure proper operation of all facilities and systems of treatment and control which are installed or used by the permittee to achieve compliance with the conditions of this permit (40 CFR 122.41(e)).

On February 19, 1993, the USEPA issued a final rule for the use and disposal of sewage sludge (40 CFR 503). This rule requires that producers of sewage sludge meet certain reporting, handling, and disposal requirements. The Commonwealth has not been delegated the authority to implement this program, therefore, USEPA Region 9 is the implementing agency. The draft permit contains biosolids/sludge management requirements consistent with 40 CFR 257, 258, and 503.

VI. DISCHARGE LIMITATIONS

Secondary Treatment Discharge Limitations

The draft permit contains the following discharge limitations for biochemical oxygen demand and total suspended solids:

Discharge Limitations				
Discharge Parameter	Average Monthly	Average Weekly	Maximum Daily	Units
Biochemical Oxygen Demand (5-day)	30 751	45 1,126	n/a	mg/l lbs/day
	The arithmetic mean of the BOD_5 values, by concentration, for effluent samples collected over a calendar month shall not exceed 15% of the arithmetic mean, by concentration, for influent samples collected at approximately the same times during the same period.			
Total Suspended Solids	30 751	45 1,126	n/a	mg/l lbs/day
	The arithmetic mean of the TSS values, by concentration, for effluent samples collected over a calendar month shall not exceed 15% of the arithmetic mean, by concentration, for influent samples collected at approximately the same times during the same period.			

The proposed monthly average and weekly average discharge limitations for biochemical oxygen demand and total suspended solids (in mg/l and influent percent removal efficiency) are based on secondary treatment requirements contained in 40 CFR 133.102(c). The proposed discharge limitations for biochemical oxygen demand and total suspended solids (in lbs/day) are calculated using a plant design flow of 3.0 MGD and the following equation: lbs/day = 8.34 x Ce x Q. "Ce" is the discharge limitation in mg/l and "Q" is the flow rate in MGD.

Water Quality Based Effluent Limitations

In accordance with 40 CFR 122.44(d), the need for discharge limitations based on water quality criteria in applicable WQS must be evaluated. As part of this evaluation, projected receiving water values--based on reported maximum discharge values (expressed in units of concentration)--are compared to appropriate water quality criteria to determine the "reasonable potential" for criteria exceedances and the need for discharge limitations. Because the Agingan WWTP discharge is to the surf zone through an intertidal outfall (open-ended pipe at water surface), there is little discharge-induced mixing resulting from the momentum and buoyancy of the effluent as it mixes with the receiving water. (Indeed, mixing of the effluent with receiving waters is primarily controlled by ambient turbulence.) Consequently, initial dilution (expressed as parts seawater per part wastewater) is not considered in this evaluation, and projected receiving water values are calculated using the following steady state equation: Cr = Ce. "Ce" is the reported maximum discharge value (in mg/l or ug/l) statistically adjusted for uncertainty using the procedure outlined in Chapter 3 of the revised *Technical Support Document for Water Quality-based Toxics Control* (TSD; EPA/505/2-90-001, 1991). "Cr" is the projected receiving

water value which is compared to the appropriate water quality criterion.

In 1995 and 1998, the permittee conducted priority pollutant scans of the Agingan WWTP discharge. In conjunction, nonconventional pollutants (e.g., whole effluent toxicity, nutrients, etc.) were also monitored. USEPA Region 9 examined these discharge data and concluded that concentrations either exceeded or had the "reasonable potential" to exceed [1] applicable water quality criteria. Therefore, end-of-pipe discharge limitations for the following pollutants are included in the draft permit: acute toxicity, enterococci and total residual chlorine, pH, nitrate-nitrogen, total nitrogen, orthophosphate, total phosphorus, unionized ammonia, turbidity, copper, lead, nickel, silver, and zinc. End-of-pipe discharge limitations are appropriate since reasonable control measures (e.g., a submerged ocean outfall resulting in greater initial dilution, effluent disinfection, etc.) to reduce the discharge of pollutants from Agingan WWTP have not been implemented.

Discharge limitations for nonconvensional pollutants (in lbs/day) are calculated using a plant design flow of 3.0 MGD and the following equation: lbs/day = 8.34 x Ce x Q. "Ce" is the discharge limitation in mg/l and "Q" is the flow rate in MGD. Discharge limitations for total chlorine residual and metals (in ug/l) are calculated using the statistical procedure outlined in Chapter 5 of the TSD; discharge limitations for total chlorine residual and metals (in lbs/day) are calculated using a plant design flow of 3.0 MGD and the following equation: lbs/day = 0.00834 x Ce x Q. "Ce" is the discharge limitation in ug/l and "Q" is the flow rate in MGD.

The draft permit proposes a "no acute toxicity" discharge limitation in 100 percent effluent where compliance is evaluated using a single-concentration toxicity test result (reported as pass/fail), rather than a multi-concentration test result (reported as a point estimate, e.g., LC_{50}). While this approach does not yield information regarding the level of toxicity present in the diluted effluent, USEPA Region 9 believes that this approach provides a reasonable balance between the need for frequent compliance monitoring and cost savings resulting from the use of single-concentration rather than multi-concentration testing. If toxicity (as defined) is detected, then additional multi-concentration testing may be recommended by USEPA Region 9. Due to the high level of total dissolved solids present in the Agingan WWTP discharge, the water flea, *Daphnia magna*, is selected as the test species.

The draft permit also proposes up-to-date analytical methods, method detection limits, and quantitation levels for effluent priority toxic pollutant analyses.

Administrative Order and Permit Modification

Because the Agingan WWTP discharge of secondary treated wastewater does not fully comply with water quality based effluent limitations in the draft permit, USEPA Region 9 is

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1 See Table 3-1 in the TSD, where $n = 2$ and $CV = 0.6$.

concurrently issuing an Administrative Order which will include: (1) a schedule of activities to ensure that the discharge will come into compliance with WQS during this permit term; and (2) interim discharge limitations based on current wastewater treatment plant performance. Reasonable control measures necessary to ensure compliance with WQS may include the construction of a submerged ocean outfall to improve initial dilution and/or additional treatment to reduce bacterial indicator organisms, nutrients, and metals concentrations in the discharge. If the permittee elects to construct a submerged ocean outfall to improve initial dilution, then portions of the *Amended Section 301(h) Technical Support Document* (EPA 842-B-94-007, 1994) which provide guidance on the calculation of initial dilution and trapping depth should be consulted.

Once reasonable control measures have been implemented, the permittee may request that DEQ grant mixing zones as alternatives to end-of-pipe water quality based effluent limitations in the effective permit. In accordance with applicable WQS, mixing zones may only be established if necessary to ensure the continued operation of the Agingan WWTP, which is in the public interest, and if mixing zones for the Agingan WWTP discharge will not substantially endanger public health and safety. If mixing zones are granted by DEQ, then the permittee may submit a request to USEPA Region 9 that the permit be reopened to incorporate recalculated water quality based effluent limitations which consider initial dilution. USEPA Region 9 anticipates that recalculated wasteload allocations (WLAs) which consider initial dilution will be determined using the following equation: Ce = Cr + Dc (Cr - Cb). "Ce" is the WLA in mg/l or ug/l; "Cr" is the water quality criterion in mg/l or ug/l to be met at the completion of initial dilution; "Dc" is the critical initial dilution; and "Cb" is the background seawater concentration in mg/l or ug/l. At minimum, USEPA Region 9 anticipates that recalculated water quality based effluent limitations for metals will be determined using these WLAs and the statistical procedure outlined in Chapter 5 of the TSD.

VII. MONITORING AND REPORTING PROGRAM

The monitoring program in the draft permit requires effluent monitoring for conventional, non-conventional, and priority toxic pollutants. The permittee's pretreatment program, designed to minimize the entrance of nonindustrial toxic pollutants/pesticides and hazardous industrial wastes into the Agingan WWTP, is consistent with applicable permitting regulations. Sludge/biosolids monitoring, record keeping, and reporting requirements are consistent with applicable requirements. Consistent with applicable water quality standards and Section 403(c) of the CWA, the draft permit contains receiving water monitoring requirements.

VIII. WRITTEN COMMENTS

Interested persons are invited to submit written comments on the draft permit and fact sheet. Comments should be submitted by September 13, 1999, either in person or by mail to the attention of Robyn Stuber at USEPA Region 9 and to DEQ:

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Telephone: 670/664-8500

IX. INFORMATION AND COPYING

Persons wishing further information may write to the above address or call Robyn Stuber of USEPA Region 9 at (415)744-1921. Copies of materials in the Administrative Record (other than those which USEPA Region 9 maintains as confidential) are available at the USEPA Region 9 office for inspection and copying between the hours of 8:00 a.m. and 4:30 p.m., Monday through Friday (excluding holidays).